

NASA Researchers Discover Large Amounts of Water on the Moon

By [Kristen Metz](#) on Sat, 05/28/2011 - 7:46am



A NASA-funded study reveals that the moon contains a much larger amount of water than was previously thought. The study, lead by a research team from Brown University suggests that the moon may contain 100 times more water in the lunar mantle than scientists suspected. The amount of water present in the lunar mantle is so plentiful that it is thought to be comparable to the amount of water in Earth's mantle.

Scientists have been aware of the existence of water on the moon for several years, when evidence first suggested the presence of water. In a paper published in *Nature* in 2008, the same research team reported evidence for the presence of water on the moon.

The new findings, published in the journal *Science Express*, were discovered by studying rocks

collected in 1972 during the final manned mission to the moon, Apollo 17. The rocks came from the area of the moon known as the "Sea of Serenity." Harrison Schmitt, a geologist and astronaut who walked on the moon during the Apollo 17 mission, collected the rocks used in the study. By studying the rocks brought back from the astronaut crew, scientists were able to detect lunar melt inclusions, which are small bits of molten rock that become trapped in crystals and turn into glass-like material. Scientists studied the water content of the lunar melt inclusions, which were formed approximately 3.7 billion years ago. A precision instrument called the NanoSIMS 50L ion microprobe was used to study the lunar melt inclusions.

The discovery of water in the lunar mantle could challenge the scientific theory of how the moon was created. The current theory, known as the "giant impact theory," states that the moon was formed after a collision between Earth and a celestial body the size of Mars around 4.6 billion years ago. The debris resulting from the collision would have been several thousand degrees, resulting in the leftover water evaporating, thus creating a dry moon. The discovery of water now has scientists confused as to the origins of the moon.

The discovery also sheds new light on the origin of water-ice found in craters at the lunar poles. Previously, the ice was thought to be the result of comet and meteor impacts. Researchers now believe that it is possible the ice is the result of water that was released during lunar eruptions billions of years ago.

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